

CLAIM AMENDMENTS

This listing of claims will replace all prior versions and listings of claims.

1. (Currently Amended) A sound reproduction system comprising:
- a digital audio signal input;
 - a digital audio signal processor;
 - a digital audio signal output,
 - a sensor ~~for measuring~~ that measures a background noise level, and
 - an element having as an input the measured noise level and as an output a HP cut-off frequency, wherein the HP cut-off frequency increases as the background noise level increases, and a LP cut-off frequency decreases as the HP cut-off frequency increases, and wherein the digital audio signal processor comprises:
 - a high pass (HP) filter₁ with a HP frequency (f)₁, that filters a signal,
 - an amplifier ~~for a signal~~ that amplifies the filtered signal ~~by the HP filter,~~
 - a low pass (LP) filter₁ with a LP frequency (f')₁ that filters the amplified signal ~~after amplification by the amplifier and for providing~~ provides an output signal,
 - an establisher that establishes either the HP frequency or the LP frequency, and

18 a matcher that matches the HP frequency and the LP frequency of the
19 HP filter and the LP filter respectively to each other.

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1 2. (Canceled)

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1 3. (Previously Presented) A sound reproduction system as claimed in claim 1,
2 further comprising:

3 a single LP filter with a variable cut-off frequency.

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1 4. (Previously Presented) A sound reproduction system as claimed in claim 1,
2 further comprising:

3 a set of LP filters with a different LP cut-off frequency, wherein the matcher
4 is arranged to send the signal after amplification to one of the set of LP filters, in
5 dependence on the HP cut-off frequency.

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1 5. (Previously Presented) A sound reproduction system as claimed in claim 1,
2 wherein the establisher is arranged for establishing the cut-off frequency of the HP
3 filter in dependence on the average amplification in the amplification stage.

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1 6. (Previously Presented) A sound reproduction system as claimed in claim 1,
2 wherein the establisher is arranged to set the cut-off frequency f' of the LP filter at

3 $f_s/2$, wherein f_s is a sample frequency and the matcher matches the HP frequency f
4 to the LP frequency f .

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1 7. (Previously Presented) A sound reproduction system as claimed in claim 6,
2 further comprising:

3 a single HP filter with a variable cut-off frequency.

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1 8. (Currently Amended) A sound reproduction system as claimed in claim 6,
2 further comprising:

3 a set of HP filters with a different HP cut-off frequency, ~~and~~ wherein the
4 matcher is arranged to send the signal before amplification to one of the set of HP
5 filters, in dependence on the LP cut-off frequency.

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1 9. (Original) A sound reproduction system as claimed in claim 1, wherein the
2 HP cut-off frequency (f) is a frequency between 300 Hz and 2 kHz.

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1 10. (Original) A sound reproduction system as claimed in claim 1, wherein the LP
2 cut-off frequency lies above 2 kHz and $f_s/2$, where f_s is a sample frequency.

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1 11. (Currently Amended) A digital audio signal processor comprising:

2 a high pass (HP) filter, with a HP frequency (f), that filters a signal;

an amplifier ~~for a signal that amplifies the filtered signal by the~~ HP filter;

and

a low pass (LP) filter, with a LP frequency (f), that filters the amplified ~~signal after amplification by the amplifier~~ and provides an output signal;[[,]]

an establisher that establishes either the HP frequency or the LP frequency;[[,]]

a matcher that matches the HP frequency and the LP frequency respectively to each other;[[,]]

~~a sensor for measuring background noise level, and~~

an element having as an input ~~the~~ a measured noise level from a sensor, the sensor measuring a background noise level, and, as an output, a HP cut-off frequency, wherein the HP cut-off frequency increases as the background noise level increases, and a LP cut-off frequency decreases as the HP cut-off frequency increases.

12. (Currently Amended) A method for processing digital sound signals in a digital audio signal processor, the method comprising:

using a high pass filter to remove wherein-frequency components below a HP cut-off frequency f are removed prior to amplification, thereby producing a filtered signal in the digital audio signal processor;

6 using an amplifier to amplify the filtered signal, thereby producing an
7 amplified signal;

8 using a low pass filter to remove ~~and, after amplification,~~ frequency
9 components above a LP cut-off frequency from the amplified signal; ~~are removed,~~

10 using a matcher to match ~~wherein~~ the values of the HP cut-off frequency and
11 the LP cut-off frequency f_l ; ~~are matched, and~~

12 using a sensor to measure a background noise level; and
13 ~~wherein a noise level (N) is measured and the HP cut-off frequency f is determined~~
14 ~~in dependence on the measured noise level~~

15 adapting a HP cut-off frequency to the measured noise level, wherein the HP
16 cut-off frequency increases as the background noise level increases, and a LP cut-off
17 frequency decreases as the HP cut-off frequency increases.

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1 13. (Original) A method as claimed in claim 12, wherein the HP cut-off frequency
2 lies between 300 and 2 kHz.

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1 14-16. (Canceled)